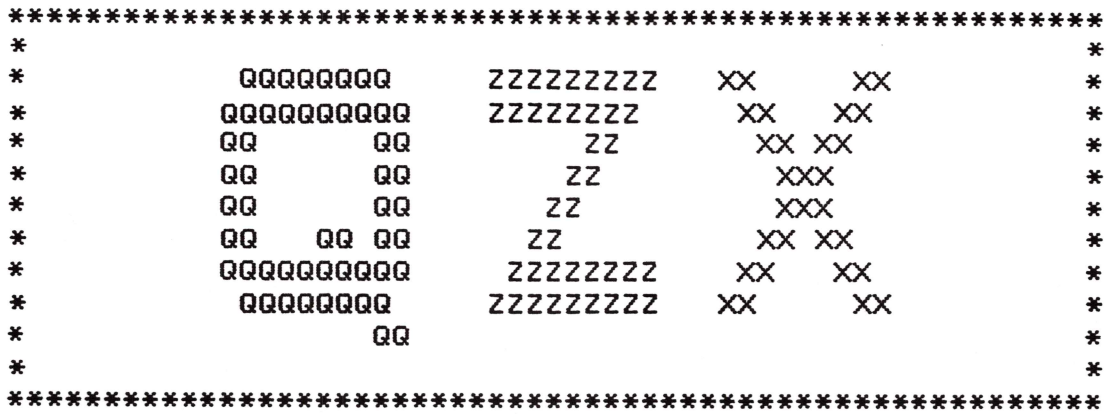

QQQQQQQ ZZZZZZZZZ XX XX
QQQQQQQQQQ ZZZZZZZZ XX XX
QQ QQ ZZ XX XX
QQ QQ ZZ XXX
QQ QQ ZZ XXX
QQ QQ QQ ZZ XX XX
QQQQQQQQQQ ZZZZZZZZ XX XX
QQQQQQQ ZZZZZZZZZ XX XX
QQ

The Journal Covering Amateur Radio & Sinclair Computers
ZX80; Micro-Ace; ZX81; TS1000, 1500, & 2068; QL; Z88
Alex. F. Burr, K5XY, Publisher
2025 O'Donnell Drive
Las Cruces, New Mexico
88001

Volume 9 Number 4 ($1.50 / issue) 1991 June

* EDITOR'S NOTES K5XY
* SATELLITE TRACKING W6WNK and WA6DLI
* UNCLASSIFIED ADS
* QXZ FRIENDS
* TS2068 BUGS

EDITOR'S NOTES

K5XY

I just looked at the table of contents of the last issue. I sure put it together in too much of a hurry. I should have deleted the line listing POPCORN NOISE and added at the end the line TS2068 ROM BUGS.

This issue is really late. There are several reasons for this. One is lack of time. The end of the school year was particularly busy this time. I had to organize and run a National Science Foundation workshop on the use of computers in the physics undergraduate labortory. There were about 40 physics teachers from all over the country attending this week long workshop. Fortunately it went off without any disasters. The computers used were MSDOS machines and Macintoshes. There are several reasons why a machine like the TS2068 or the QL would have made an ideal machine for this type of work; one being that cost is a big factor in most of the physics laboratoies in this country. The A to D converters on the computers in our laboratory cost almost $500. QZX a while back ran a review of a simple A to D converter for the QL which cost only about 1/5 of that. And you would have had color too. Unfortunatly these machines are not readily available in this country. (There are only about 500 left to sell.) Futhermore there is not the software available at any price that can match some of the software that is available for the MSDOS machines. This software really makes it easy for a student to manipulate data in ways that are just too time consuming to be used in the typical teaching laboratory.

I had less than a week to clean up after the workshop and prepare for another trip to El Salvador, where I am involved in the construction of a new laboratory building for the Nuclear Sciences Laboratory of the University of El Salvador. Unfortunately that building did not get finished for various reasons which have no relation to QZX. I saw quite a few computers there, but all were of the MSDOS variety. I did not even see any Macintoshes although the lab I was working with did have the responsibility of keeping about 40 Commodore 64 computers running. A typical MSDOS machine there costs about 50% more than the comparable machine in the USA.

I did not meet any hams while I was there, but I did see a lot of triband beams. Some were even being used; because I could see them pointed in different directions from day to day. I saw more than the last time I was there because I was staying in a rather high class residential area. As before, many residences and businesses felt it necessary to have heavily armed gaurds at their entrances, and many streets had army patrols walking along the sidewalks.

I returned to Las Cruces on a Saturday and now have one working day to get ready for a trip to Hawaii where, if the weather cooperates and the airplanes are not too full, I will observe the eclipse on July 11.

Actually one of the reasons this issue is late is I did not have any new articles for it. Fortunately WA6DLI has come to my rescue with a fine article on the use to the TS1000 type of computers to track satellites. This article will be divided up into several parts and will appear in the next few issues. This article will also help fill the requests of several of you for more infomation which can be used with the TS1000 type of computers. It also can be used by the TS2068 with relatively few changes in the code.

If all goes well you will see the July issue in July.

SATELLITE TRACKING

W6WNK and WA6DLI

The next two pages contain part of a TS1000 satellite tracking program.

VR-85 Satellite Tracking Program by Vic Ruebhausen, W6WNK

Timex TS-1000/ZX-81 (can be run on TS-2068 with some editing)
Satellite Tracking program by W6WNK Vic, modified W3IWI type. (WA6DLI
has QL and TS-2068 versions). See QZX Newsletter by K5XY or radio nets.
REM remarks are ALSO notes for coverting text (Those after : on same line)
to program! Two statements per line illegal so don't type REMs following':'!

```
  3 GOTO 30
  4 LET I = 1
  5 DIM J$ (40)
  6 LET J$="          IDEA BY W6WNK          ":(REM INV 8, spaces each side txt)
  7 PRINT AT 13,0;J$
  9 FOR B=1 TO 6 STEP 32
 10 LET I=I+1
 12 LET J$(B TO B+31) = J$(B+1 TO B+31) + J$(B)
 15 IF I = 33 THEN GOTO 6416
 16 NEXT B
 20 GOTO 7
 30 CLS
 35 SLOW
 40 PRINT "   MENU FOR VR-85 BY W6WNK - "
 50 PRINT " (use half-square top black for 30 spaces, in quotes) ":REM graphic
 60 PRINT
 65 PRINT
 70 PRINT """1""  OSCAR 13 WORLD MAP"   :(REM sub satellite name if other keps)
 95 PRINT
100 PRINT """2""  IMPORTANT INSTRUCTIONS" :(REM make the 2 inverse char.)
110 PRINT
120 PRINT """3""  KEPLERIAN DATA "        :(REM make 3 inverse)
125 PRINT
130 PRINT """4""  WINDOWS TO DX CITIES"
131 PRINT
132 PRINT """5""  RANGE DATA TO PRINTER " :REM make text 'printer' Inverse
133 PRINT
134 PRINT """6""  SAVE TO TAPE"
135 PRINT
136 PRINT """7""  SPEED SAVE" :REM for stringy-floppy or some other scheme
138 PRINT
140 PRINT AT 18,5;"SELECT DESIRED MODE";AT 19,6;"TYPE INPUT NUMBER"
150 GOSUB 1240
155 LET B$ = INKEY$
160 IF B$ < "1" OR B$ >"7" THEN GOTO 150
170 GOTO (B$="1") * 5070 + (B$="2") * 1550 + (B$="3") * 2000 + (B$="4")
    * 9540 + (B$="5") * 9490 + (B$="6") * 9997 + (B$="7") * 9300
1250 IF INKEY$ <> "" THEN GOTO 1250
1255 IF INKEY$ = "" THEN GOTO 1255
1256 LET A = 3
1265 RETURN
1550 CLS
1555 PRINT AT 0,9; "INSTRUCTIONS"  :REM inverse letters
1556 PRINT
1557 PRINT "THE VR-85 HAS 3 PGM SELECTIONS."
1558 PRINT
1560 PRINT "1 -MAP- SAT MOVES IN 30 MIN STEPS, PRESS BREAK TO STOP AND -C- TO
CONTINUE (ENTER ANY DATE AND TIME UTC. IF SAT NOT IN VIEW -EL- WILL READ ZERO)"
1561 PRINT
1565 PRINT "4 - WINDOWS FOR DX CITIES COVERS 6 HOURS  FROM SELECTED TIME."
```

```
1566 PRINT


1567 PRINT "5 - RANGE, GROUND PATH DATA, USED ON
           OSCAR-13 FOR PRINTER ONLY."
1568 PRINT
1569 PRINT "NOTE USE EVEN HOURS (EG 1100) AS HHMM TO START" :REM note txt INV
1570 PRINT "ENTER HOME QTH ON LINES 6800-10"
1665 PRINT AT 20,5;"PRESS ENTER TO RETURN" :REM enter is INV
1670 GOSUB 1250
1680 GOTO 30
2000 CLS
2020 SLOW
2030 LIST 6500
2270 GOSUB 1240
2280 GOTO 30
3010 CLS
3015 PRINT "TYPE BREAK TO STOP AND C TO CONT" :REM inverse text
3016 PRINT
3020 PRINT
3025    REM:FOR THE NEXT FEW LINES THAT MAKE 'WORLD MAP' THE KEYBOARD
        ENTRY IN QUOTES WILL USE 's' FOR SPACE, AND GS + KEY FOR GRAPHIC
        AND SHIFTED LETTER TO SHOW HOW YOU SHOULD ENTER LINE INTO COMPUTER!
        e.g GS1 means strike shifted key '1' with Graphics mode ON.
            GSA means stike shifted A with Graphic mode on. Note little 's'
        means space-bar to distinguish it from 'S' which now means SHIFT KEY.
        Gs means Space-bar in Graphics mode (make Black block)
         (In the following a space for clarity only.'s' is program 'space')

3030 PRINT "sssss GS6 GS6 GS6 ss GSR GsGs GSE ssssssss GS6 GsGs GS6 GS4"
3040 PRINT "Gs GS8 GsGsGsGs GS5 sss Gs GS1 sss GSE
           GsGsGsGsGsGsGsGsGsGsGsGs"
3050 PRINT "s GSG s GS7 GsGsGs GSW GS6 Gs GSW ssss GS1 GS3 GS6 GsGs
           GsGsGsGsGsGsGsGs GSE GS5"
3060 PRINT "ssss GS8 GsGsGsGsGs GS4 ssss GS6 GsGsGsGsGsGsGsGsGsGs GSE"
3070 PRINT "sssss GsGsGsGs GS1 sssss GS7 GS2 GS2 GsGsGsGsGsGsGsGs GS5 GS5"
3080 PRINT "ss GS4 ss GS2 Gs GSE GSR sssss GSQ GsGsGsGsGsGsGsGsGsGs"
3090 PRINT "ss GS2 sss GS2 Gs GS4 sssss GsGsGsGsGsGs GS7 GS7 Gs GSE GSR GS5"
3100 PRINT "sssssssss GS7 GsGs GS6 ss GS7 GSR GsGsGs ss GS2 ss GS1 GS3"
3110 PRINT "sssssssss GS8 GsGsGsGs ssss GsGs GS5 ssss GS2 GS4 GS1 s GS6"
3120 PRINT "sssssssss GS8 GsGsGsGs ssss GsGs GS5 ssssss GS3 GS6 GS6"
3130 PRINT "ssssssssss GSR GsGs GS1 ssss GsGs s GS5 ssss GS8 GsGsGs GS4"
3140 PRINT "ssssssssss GS8 Gs GS5 sssss GS2 GS1 ssssss GS2 GS7 GsGs GS1 s GS3"
3150 PRINT "ssssssssss GS8 GS5 ssssssssssssssssssss GS1"
3160 PRINT "sssssssss GS8"

3162 REM Normal programing again..e.g. space means space, no graphic
characters, unless noted in ()!

3165 PRINT AT 17,0;"SAT: OSCAR-13   DATE: ";INT MO;"/"; INT DM;"/"; INT YR;
3166 PRINT AT 18,0;" (30 GSS Characters..lite upper half-bar) "
3170 PRINT AT 19,0;"UTC    "; TAB 6;"AZ  "; TAB 10;"EL"; TAB 13;"RANGE"; TAB
          20;"LON"; TAB 24;"LAT"; TAB 29;"PHS";  :REM all inverse in quotes!
3180 GOTO 7010
3185 SLOW
3510 IF W5 <= 180 THEN LET LO=W5/-5.62+31
3520 IF W5 > 180 THEN LET LO=W5/-5.62+95
3530 LET LA = L5/5+23
```

UNCLASSIFIED ADS

WANTED: UNCLASSIFIED ADS for publication in QZX. Cost is 1 cent for each keystroke (characters, etc.). Payment must be included with order. This is an excellent way to sell your program or unwanted equipment, ask for help, or find a specific program. Send your ad with payment to QZX, 2025 O'Donnell, Las Cruces, NM 88001.

FOR SALE: CP/M Books. Almost new. Half price. THE PROGRAMMER'S CP/M HANDBOOK by Andy Johnson-Laird. Osborn. Hardback 500 pages. $19. THE BYTE GUIDE TO CP/M by Mark Dahmke. McGraw Hill $8.50. 250 pages. CP/M USERS GUIDE by Thom Hogan. Osborn $8.95. 330 pages. THE CP/M PLUS HANDBOOK by Alan R. Miller. Sybex. 250 pages. $7.90. INSIDE CP/M PLUS by David E. Cortesi. Holt-Rinehart. 260 pages. $9.25. CP/M BIBLE by Waite and Angermeyer. Howard Sams. 430 pages. $9.90. USERS GUIDE TO CP/M SYSTEMS by Bove and Rhodes. Baen. 300 pages. $4.50. $1.00 each shipping and handling. A. F. Burr, 2025 O'Donnell, Las Cruces, NM 88001.

QZX Discount: 15% discount on all orders mentioning QZX. T & C Services (address in ad in this issue).

QZX FRIENDS

WA3QLW -- Leslie has moved back to Colorado. She moves more often than anybody else on the subscription list. She also found time to write the series of articles on active filters which appeared recently.

W4EDL -- Bob renewed and sent a generous contribution to the postage fund. He also indicated that his improving health will probably permit him to resume his work on some microwave path programs. He did tell a bit about a job that he had a long time ago driving Greyhound buses through Las Cruces.

KF5GG -- George renewed, sent a contribution to the postage fund, and mentioned that he had obtained several items from RMG Enterprises, a new advertiser in QZX. He says that a lot of the T/S items they carry are almost impossible to find elswhere any more.

TS2068 BUGS

The following pages contain a partial list of the bugs that have been found in the operating system of the TS2068. In some cases a method of correcting for the bug is given also. These pages are patterned after similar pages from the TS2068 technical manual. This article is the last in the series on this subject. The paragraphs have been numbered as in the technical manual for ease of reference. However the manual got its numbering system mixed up and the first two paragraphs given here should be numbered 6.5.7 and 6.5.8 if a duplication is to be avoided.

(716) 834-1716 **T & C SERVICES 20 LIBERTY TERRACE BUFFALO, N.Y. 14215** (716) 834-1716

Call or write for a free catalog of products for the Timex Computer

6.5.6 GET_NUMBER- Always returns the Dock Bank # for any memory enabled in the ROM Extension. Unlikely to be a problem because of limited use of the ROM Extension.

6.5.7 XFR_BYTES- Improperly passes memory select byte for the case where source and destination are in the same bank. This is corrected by setting Location 676AH = 5FH (POKE 26474,95).

6.6 GENERAL

6.6.1 Pressing ENTER multiple times with an invalid tape command on the edit line (syntax error) causes the system to reset. This is due to overflowing the Bank Status Stack in RAM Chunk 3/7 due to the multiple calls to and from the Extension ROM via the Call_Bank code without normal termination (the error causes a RESTART 8 to be executed out of Home ROM code called from the ROM Extension). It shouldn't take anybody that many tries to get a tape command right, so this is not a real problem, but you may want to keep it in mind. For any call made through the OS RAM services, you should have a corresponding return to keep the structures clean.

6.6.2 ON ERR GOTO - If a non-existent line number is specified, followed by an error, the system will hang. The ROM code is in an endless loop trying to report the absence of a valid error handler to the non-existent error handler!!! On some errors, you will get an unexpected Ø OK termination showing the line number of your Error Handler. This is because some ROM routines temporarily clear the INTPT Flag (Bit 7 of FLAGS). This flag is set to Ø when checking syntax and set to 1 when executing; if an error is detected while the Flag=Ø, the error handler code is branched to but is not executed.

6.6.3 Parameters to the SOUND command are not fully validated, therefore you can specify a number beyond the valid range for a given operation and not get an error, for example, you can write a value greater than 63 to the Enable Register (Reg.7), possibly changing the I/O Port used for reading the joysticks from input to output. If you specify a number larger than 255 (FFH), only the least significant byte will be actually written to the Programmable Sound Generator. Access to PSG Reg. 14 (IO-A) used for the Joysticks is also not precluded via the SOUND command.

If you experience difficulty in reading the joystick(s), do a write to PSG Reg. 7 clearing Bit 6 to

Ø to guarantee that the joystick path is enabled for input (see Section 4.3). This write can be done by executing a SOUND 7,63 (or any value less than 63).

6.6.3 The INTEGER function for (-65536) gives an incorrect result of -1, and for other cases where the result should be -65536, it gives -1E-38. Since the ROM code cannot be changed, there is no correction.

6.6.4 If you respond to the SCROLL? message using multiple keys such as Cap Shift/2 or Cap Shift/Symbol Shift, you will get strange results like dumping of the Edit Line with the "C" or "E cursor, display of ROM data, or multiple scrolls. Stick to single key responses and you won't have any problems!

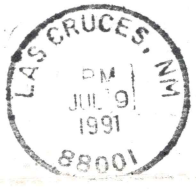
6.6.5 When DELETE (Cap Shift/0) is held down to do deletion of characters in the Edit Line, sometimes it outputs the DELETE Keyword instead (it should not do this in auto-repeat mode). This is especially noticeable when the input line is long. Since the ROM code cannot be corrected, you must try releasing and pressing the DELETE key at differing frequencies and you will be able to get past this "Bug".

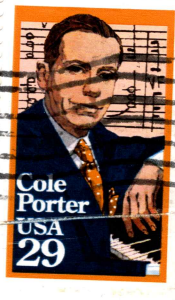
@@@

73, K5XY

QZX presents the best software & hardware projects available for the radio amateur. While the contents are believed to be accurate, no warranty is extended on any program or project. No investigation has been made of the claims or reputation of any advertiser. It would be greatly appreciated if all correspondence requiring an answer would be accompanied by a self-addressed stamped envelope (SASE). Copyright by QZX, 1991. All rights reserved, photocopying by permission only. ISSN 1055-1735

```
*******************************************
* Please send me QZX for 1 year, starting *
* immediately.  Enclosed is $15.00 for    *
* twelve issues. (Those with addresses    *
* not in Canada, the US, or Mexico send   *
* $25 in US funds for air mail delivery.) *
* Thanks.  (91/06)                        *
*                                         *
* Name _____________________________      *
* Call _______                            *
*                                         *
* Address __________________________      *
*                                         *
* City _____________________________      *
*                                         *
* State _____ Zip _________               *
*******************************************
```





QZX Journal
2025 O'Donnell Drive
Las Cruces, NM 88001

FIRST CLASS MAIL